

MHT-CET 2017.

Question Booklet Version

44

SUBJECT : PAPER III : BIOLOGY

Instruction to Candidates

- 1. This question booklet contains 100 Objective Type Questions (Single Best Response Type) in the subjects of Biology.
- 2. The question paper and OMR (Optical Mark Reader) Answer Sheets are issued to examinees separately at the beginning of the examination session.
- 3. Choice and sequence for attempting questions will be as per the convenience of the candidate.
- 4. Candidate should carefully read the instructions printed on the Question Booklet and Answer Sheet and make the correct entries on the Answer Sheet. As Answer Sheets are designed to suit the OPTICAL MARK READER (OMR) SYSTEM, special care should be taken to mark appropriate entries/answers correctly. Special care should be taken to fill QUESTION BOOKLET VERSION, SERIAL No. and Roll No. accurately. The correctness of entries has to be cross-checked by the invigilators. The candidate must sign on the Answer Sheet and Question Booklet.
- 5. Read each question carefully.
- 6. Determine the correct answer from out of the four available options given for each question.
- 7. Fill the appropriate circle completely like this ●, for answering the particular question, with Black ink ball point pen only, in the OMR Answer Sheet.
- 8. Each answer with correct response shall be awarded **one (1) mark.** There is **no Negative Marking**. If the examinee has marked two or more answers or has done scratching and overwriting in the Answer Sheet in response to any question, or has marked the circles inappropriately e.g. half circle, dot, tick mark, cross etc, mark/s shall NOT be awarded for such answer/s, as these may not be read by the scanner. Answer sheet of each candidate will be evaluated by computerized scanning method only (Optical Mark Reader) and there will not be any manual checking during evaluation or verification.
- **9.** Use of whitener or any other material to erase/hide the circle once filled is not permitted. Avoid overwriting and/or striking of answers once marked.
- 10. Rough work should be done only on the blank space provided in the Question Booklet. Rough work should not be done on the Answer Sheet.
- **11.** Immediately after the prescribed examination time is over, the Question Booklet and Answer sheet are to be returned to the Invigilator. Confirm that both the Candidate and Invigilator have signed on question booklet and answer sheet.
- **12.** No candidate is allowed to leave the examination hall till the examination session is over.

Questions and Solutions

Paper – I

1. 1.	The highest rate of pho (A) yellow and orange (C) red and blue (C)	tosynthesis in green plan	ts is in and (B) green and violet (D) violet and blue	region of light spectrum.
2. 2.	In some species of familiary (A) apomixis	ily Asteraceae seeds are j (B) amphimixis	produced without fertiliz (C) parthenocarpy	ation. It is called as (D) vivipary
3.	The pH of nutrient med	lium in plant tissue cultur	re is adjusted between	
3.	(A) $3 - 4$ (C)	(B) 4.1 – 4.8	(C) 5 – 5.8	(D) $6 - 7$
4. 4.	The simplest of all nutr (A) carbon (B)	ient cycles operating in a (B) phosphorous	n ecosystem is(C) nitrogen	_ cycle (D) sulphur
5.	Identify the microbial s (A) Streptomyces grise (C) Penicillium chrysog	ource for antibiotic strep us genum	tomycin. (B) Streptomyces venez (D) Staphylococcus aur	zuelae reus
5. 6.	(A) Which one of the follo	owing process occurs in	side the nucleus during	protein synthesis in a eukaryotic
6.	cells ? (A) Processing of hnRN (C) Translation (A)	NA	(B) Activation of amine(D) Formation of polyp	o acids eptide chain
7.	In single Krebs Cycle d	lecarboxylation takes pla	ce at steps.	
7.	(A) Five (D)	(B) Four	(C) Three	(D) Two
8. 8.	The genetic material of (A) ds DNA (D)	M ₁₃ bacteriophage is (B) ds RNA	(C) ss RNA	(D) ss DNA
9. 9.	Motile zoospores are pr (A) <i>Chlamydomonas</i> (A)	roduced by (B) <i>Penicillium</i>	(C) Bacteria	(D) Amoeba
10.	The suspensor during the	he development of an ang	giosperm embryo is form	ed from
10.	(A) basal cell (A)	(B) apical cell	(C) embryonal cell	(D) generative cell
11. 11.	Which one of the follow (A) Epidermis (C)	wing layer of the anther v (B) Middle layer	vall helps in its dehiscend (C) Endothecium	ce ? (D) Tapetum
12.	The triplet on coding s tRNA during translation	strand of DNA is ATG. n ?	What would be the requ	uired anticodon on corresponding
12.	(A) UAA (D)	(B) UAG	(C) UGA	(D) UAC

(3)	VIDYALANKAR : MI	HT-CET - 2017 : Pape	er and Solution	
13.	During anaerobic resp molecule is	piration, number of ATH	P molecules generated	by the breakdown of 20 glucose
13.	(A) 90 (C)	(B) 60	(C) 40	(D) 20
14. 14.	In E. Coli, op (A) 80 operons and 260 (C) 280 operons and 80 (B)	erons are formed by grou) genes) genes	(B) 75 operons and 260 (D) 280 operons and 75	nes.) genes 5 genes
15.	A slender, prostrate su reproduction is	ubaerial branch of the st	em which creeps along	the ground helping in vegetative
15.	(A) stolon (C)	(B) sucker	(C) runner	(D) offset
16. 16.	During fertilization if t (A) mesogamy (A)	he pollen tube enters the (B) porogamy	ovule through integumen (C) chalazogamy	nts, then it is called as (D) siphonogamy
17.	To determine whether performed.	F ₁ hybrid is homozygou	as or heterozygous for a	particular trait cross is
17.	(A) monohybrid(B)	(B) test	(C) back	(D) reciprocal
18. 18.	Number of oxygen mod (A) 0 (A)	lecules utilized in glycoly (B) 2	ysis is (C) 4	(D) 6
19.	A cell organelle whic	h lacks membrane, con	sists of 65% rRNA, 35	5% proteins and helps in protein
19.	(A) nucleus (C)	(B) nucleoid	(C) ribosome	(D) nucleolus
20.	Cyclic photophosphory	vation will NOT take pla	ce in the absence of	(D) physocrythrin
20.	(B)	(B) entorophyn-a	(C) xanthophyns	(D) phycoerythini
21. 21.	How many different ty (A) 16 (D)	pes of gametes will be fo (B) 08	ormed by a pea plant with (C) 06	n genotype TtYy? (D) 04
22. 22,	The megasporangium p (A) integument (C)	proper of an angiosperm (B) funicle	ovule is represented by (C) nucellus	(D) micropyle
23. 23.	Which one of the follow (A)Sunlight (A)	wing is an essential facto (B) Carbohydrate	r for photophosphorylati (C) Oxygen	on? (D) Water
24. 24.	Generally the pollen gr (A) uniporate and bipo (C) uniporate and tripo (C)	rains of monocots are rate rate	 and dicots are (B) biporate and triporate (D) triporate and tetrap 	_ respectively. ate orate
25. 25.	A nucleic acid whose r (A) DNA (D)	nolecular weight ranges l (B) mRNA	between 40,000 to 1,00,0 (C) tRNA	000 in a cell is (D) rRNA

26.	Which of the following is (A) Multiple alleles (C) Incomplete dominant	s an example of interger ce	ic gene interaction?(B) Co-dominance(D) Polygenes	
26.	(D)			
27.	Which one of the followi (A) No scope for develop (C) Genetic stability can	ng is NOT a disadvanta bing improved varieties be maintained	ge of self pollination? (B) Progeny becomes w (D) Less adaptability to	eaker climatic variations
27.	(C)		(2) 2000 and money to	
28.	Dark reaction of photosyn	nthesis is a cyclic proce	ss as is regenera	ted.
28.	(A) RuBP ((A)	(B) CO_2	(C) Glucose	(D) PGA
29.	What is the approximate (A) 2.2 meter	size of nucleus in a typi (B) 1.2 meter	cal mammalian cell? (C) 10^{-4} meter	(D) 10^{-6} meter
29.	(D)	(_ ,	(-,	
30.	In two turns of Krebs Cyc (A) Six (cle the number of NAD (B) Five	H ₂ molecules produced i (C) Four	(D) Three
JU.			A 1/1 1/1 10	
31.	(A) Exonuclease(C) Restriction endonucle	ease	(B) Alkaline phosphata(D) Reverse transcriptas	se se
31.	(C)			
32.32.	The decomposers in an eq (A) autotrophs ((B)	cosystem are(B) microconsumers	(C) macroconsumers	(D) abiotic components
33.33.	 3. Which of the following represents the correct sequence of nucleic acids considering their decreasing molecular weight? (A) DNA → mRNA → tRNA → rRNA (B) DNA → mRNA → tRNA → tRNA (B) DNA → mRNA → tRNA → tRNA (D) DNA → tRNA → mRNA 			
24	In mombans of family Ca		concerted from storch d	uning night
34.	(A) Phospho Enol Pyruvi (C) Malic Acid	ic Acid	(B) Pyruvic Acid (D) Oxalo Acetic Acid	unng mgm.
34.	(A)			
35.	Which one of the followit(A) Sweet potato	ng plants reproduces ve (B) Potato	getatively by epiphyllou (C) Onion	is buds? (D) Kalanchoe
35.	(D)			
36.	In Aulosira, Tolypothrix a	and Nostoc, (B) arbuscles	are the sites for Nitr (C) akinetes	ogen fixation. (D) heterocysts
36.	(D)	(2) 410 400 100	(0)	(2)
37.	The number of phenotyp	pe recombinant offsprin	ngs formed during F_2 g	eneration of a dihybrid cross are
37.	(A) 9/16 ((C) ((B) 7/16	(C) 6/16	(D) 4/16
38.	During glycolysis the co	ompounds PGAL and	DHAP are formed fro	m fructose 1, 6 diphosphate by
38.	(A) cleavage (A)	(B) isomerisation	(C) phosphorylation	(D) condensation

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(-)					
39. 39.	 Select correct statement from the following : (A) In a DNA molecule, the two strands are antiparallel and non complementary. (B) The rRNA is always present in variously folded form. (C) During DNA replication, leading strand is formed in 3' → 5' while lagging strand is formed in 5' → 3' direction. (D) The mRNA molecule may be straight or coiled upon itself to form a hairpin like shape. (B) 				
40. 40.	 Relatively small DNA molecules of plasmids can be identified				
41. 41.	Stamens with long bifu (A) Bignonia (C)	rcated connective are for (B) Bombax	und in (C) Salvia	_ flower. (D) Cestrum	
42. 42.	The spatial pattern of d (A) Stratification (B)	ensity and distribution of (B) zonation	f species along a horizont (C) trophic niche	al gradient is called as (D) volume niche	
43. 43.	The cos ends of DNA o (A) Five (C)	of lambda phage has (B) Ten	(C)Twelve	(D) Fifteen	
44. 44.	The CO ₂ content in bio (A) 10 - 14% (B)	gas ranges from (B) 15 - 45%	(C) 50–60%	(D) 70 –80%	
45. 45.	Which of the following (A) <i>Candida</i> (C)	is an algal source of SC (B) <i>Methanobacillus</i>	P? (C) Chlorella	(D) Saccharomyces	
46. 46.	The plasmid of which of (A) <i>Rhizobium</i> (C) <i>Bacillus thuringien</i> (A)	one of the following has	[•] Nif ² gene in it? (B) Agrobacterium tum (D) Salmonella typhimu	efaciens ırium	
47. 47.	Which one of the follow (A) Cloth (D)	wing material is NOT sat (B) Paper	fe to prepare carry bags ? (C) Jute	(D) Polythene	
48. 48.	Which one of the follow (A) Red rot of sugarcar (C) Brown rust of whea (B)	wing disease is caused by ne at	y bacteria? (B) Black rot of crucife (D) Late blight of potate	rs O	
49. 49.	If the cells of the nucel chromosomes in the en (A) 12 (C)	lus in the angiosperm ov dosperm of a self pollina (B) 24	vule contains 24 chromos ated flower? (C) 36	omes, what will be the number of (D) 48	
50. 50.	Which one of the follow (A) Pseudomonas sp. (C)	wing is NOT a bacterial l (B) Xanthomonas sp.	herbicide? (C) Fusarium sp.	(D) Agrobacterium sp.	

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		Ра	aper – II	
51.	Formation of urea takes	place in the	(C) Liver	(\mathbf{D}) Lung
51.	(C)	(B) Kluney	(C) Liver	(D) Lung
52.	In MOET technique,	is administered to	bring about super ovulati	on.
	(A) ACTH	(B) FSH	(C) LH	(D) TSH
52.	(B)			
53.	Seymouria is a connectin	ng link between		
	(A) Aves and mammals		(B) Amphibians and Re	ptiles
57	(C) Pisces and Amphibia	ans	(D) Reptiles and Aves	
55.	(b)			
54.	Which one of the follow:	ing is NOT an example	of ex-situ conservation of	of endangered species?
- 4	(A) Zoological park	(B) National park	(C) Culture collection	(D) Botanical garden
54.	(B)			
55.	Atrial systole lasts for	in Cardiac Cycle	е.	
	(A) 0.1 second	(B) 0.3 second	(C) 0.5 second	(D) 0.7 second
55.	(A)			
56.	Select the correct match	:		
	Column – A	Column – B		
	(a) Seminal fluid	(i) Corpus spongi	osum	X
	(b) Prostate gland	(ii) Membranous u	irethra	
	(c) Ejaculatory duct	(iii) Clitoris		
		(v) Prostaglandins		
	(A) (a) - (iv)	(B) (b) - (v)	(C)(c) - (i)	(D) (d) - (ii)
56.	(A)			
57	Transconio onimala ora a	wtonsively used for all	of the following proceedy	
57.	(A) Bioremediation	extensively used for all	(B) Chemical safety	ICS LACEI I
	(C) Vaccine safety		(D) Toxicity test	
57.	(A)		•	
58	Grava's disaasa is charas	tarised by the following	FVCEDT	
30.	(A) Deposition of fats in	eve sockets	(B) Enlargement of thy	roid gland
	(C) Weight loss		(D) Weight gain	8
58.	(D)			
59	Feminised males have	chromosomes		
57.	(A) 44	(B) 45	(C) 46	(D) 47
59.	(D)	`		
60	The post fertilization ch	anga involvas		
00.	(A) Haploid gametic mat	turation		
	(B) Introduction of centr	ioles in the ovum		
	(C) Inhibition of Meiosis	s – II		
C 0	(D) Formation of vitellin	e membrane		
60.	(A)			
61.	Deposition of fatty subst	ances in the lining of ar	teries is termed as	
	(A) Arteriosclerosis		(B) Atherosclerosis	
	(C) Arthritis		(D) Angiogenesis	
61.	(B)			

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- 62. An axial filament in the tail of sperm is modified _
 - (A) Distal centriole
 - (C) Golgi complex

62. (A)

- (B) Endoplasmic reticulum
 - (D) Proximal centriole
- 63. In DNA fingerprinting technique, the radioactive intermediates formed during hybridization are _____
 - molecules (A) Double-stranded DNA
 - (C) Single-stranded mRNA

- (B) Single-stranded DNA
- (D) Double-stranded rRNA

- **63.** (A)
- 64. The functional area of human cerebrum marked by 'X' is ____



			MHT-CET - 2	2017 : Paper and Solution (8)
72.	If cranial nerves : 12 pa	irs, then spinal nerves :		
	(A) 30 pairs	(B) 31 pairs	(C) 32 pairs	(D) 33 pairs
72.	(B)			
73	One of the following is	NOT an example of inco	omnlete sex_linkage	
10.	(A) Total colour-blindr	<u>ress</u> an example of med	(C) Retinitis pigmentos	a
	(C) Nephritis		(D) Myopia	-
73.	(D)			
74	During socratory phase	of monstruel evaluation	ndometrial lining attains	thickness of
/ 4.	(A) $10 \text{ mm} - 12 \text{ mm}$	of mensuual cycle, the e	(B) 5 mm $-$ 6 mm	
	(C) $3 \text{ mm} - 4 \text{ mm}$		(D) $1 \text{ mm} - 2 \text{ mm}$	
74.	(C)			
	** 7 7 17 1 1			
75.	Homo habilis is also ca. (Λ) Tool maker map	lled	(D) Man with and brain	
	(C) Iava ane man		(D) Heidelberg man	
75.	(A)		(D) Heidelberg man	
76.	The prostatic fluid form	is about o	f total volume of semen.	
76	(A) 60%	(B) 50%	(C) 40%	(D) 30%
70.	(D)			
77.	In gene therapy,	can be treated by g	gene DNase.	
	(A) Pituitary dwarfism	(B) Hepatitis – B	(C) Hemophilia	(D) Cystic fibrosis
77.	(D)			
79	Stimulation of DDC pro	duction is by the hormo		
70.	(A) Aldosterone	(B) Adrenaline	(C) Cortisol	(D) Nor-Adrenaline
78.	(C)		(c) contisor	
79.	The yellow colour of no	ormal urine is due to		
70	(A) Bilirubin	(B) Biliverdin	(C) Urochrome	(D) Uric acid
19.	(C)			
80.	Mule is an example of			
	(A) Cross-breeding		(B) Interspecific Hybrid	lization
	(C) Out-breeding		(D) Out-crossing	
80.	(B)			
81	Select the correct match			
01.	Column – A		Column – B	
	a) Rock bee		i) Apis indica	
	b) Little bee		ii) Apis dorsata	
	c) European bee		iii) Apis florea	
	d) Indian bee	1	iv) Apis mellifera	
	(A) $a - iv, b - i, c - iii$, (D) $a - iii b - iiii c - iii$	d - 11	(B) $a - 111$, $b - 11$, $c - 1V$, (D) $a - iv b - iii c - iv$	d-1
81	(D) $a = 11, b = 111, c = 10$ (C)	, u – 1	(D) a - iv, b - iii, c - i,	u – 11
82.	When members of a pe	opulation attain sexual n	naturity at different time	es preventing inter-breeding, it is
	termed as is	solation.		
63	(A) Seasonal	(B) Mechanical	(C) Habitat	(D) Ethological
04.	(1)			

(9)	(9) VIDYALANKAR : MHT-CET - 2017 : Paper and Solution					
83. 83.	One of the following is a positive inter-action in (A) Adamsia – Hermit Crab (C) Sacculina – Crab (A)	a population. (B) Plasmodium – Mos (D) Wuchereria – Man	quito			
84. 84.	Mitral valve and tricuspid valve are attached to t (A) Corpus callosum (C) Crura cerebri (D)	the papillary muscles by (B) Columnae carnae (D) Chordae tendinae				
85. 85.	Cytotoxic T-cells are (A) Helper T-cells (C) Memory T-cells (B)	(B) Killer T-cells(D) Suppressor T-cells				
86. 86.	Organisms possessing strong and stout forelimbres (A) Arboreal (B) Cursorial (C)	s with clawed digits show (C) Fossorial	w adaptations. (D) Volant			
87. 87.	Athlete's foot is caused by a(A) Virus(B) Roundworm(C)	(C) Fungus	(D) Bacterium			
88.	The birth control pill contains (A) Progesterone and estrogen (C) FSH and LH	(B) LH and estrogen(D) FSH and estrogen				
88.	(A)					
07.	Column A a) Tactile receptor b) Frigido receptor c) Gustato receptor d) Tango receptor	Column Bi) Tasteii) Touchiii) Pressureiv) Coldv) Tension				
89.	(A) a - iii (B) b - v (C)	(C) c – i	(D) d – iv			
90.	Select the correct sequence of the F_1 generation. $\begin{array}{c} $	$X^{H} X^{H}$ X^{H}	→ Parent → Gamete → F_1 gen			
90.	(A) $(1 - X^{H}X^{H}, (2 - X^{h}X^{H}, (3 - X^{H}Y, (4 - X^{H}Y)))$ (C) $(1 - X^{H}X^{h}, (2 - X^{h}X^{H}, (3 - X^{h}Y, (4 - X^{h}Y)))$ (B)	(B) $(1) - X^{H}X^{h}, (2) - X^{H}$ (D) $(1) - X^{h}X^{H}, (2) - X^{H}$	${}^{H}X^{h}, \Im - X^{H}Y, \spadesuit - X^{H}Y$ ${}^{H}X^{h}, \Im - X^{H}Y, \spadesuit - X^{h}Y$			
91. 91.	Treponema pallidum is a bacterium. (A) Streptococcus (B) Streptobacillus (C)	(C) Spirochaete	(D) Oligochaete			

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Sun.	14 May	10.30 a.m.	Borivali (W) : Kora Kendra , Near Mc.Donalds, R.M.Bhhattad Road Tel.: 4232 15 00 / 2891 05 21
Sun.	14 May	5.30 p.m.	Vashi : Daivadnya Bhavan Hall, Plot No 1C1, Sec 9A, Vashi , Navi Tel.:4173 32 00 / 2789 31 85
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Wed.	17 May	5.30 p.m.	Dombivli (W) : Everest Hall M.G.Road, Opp Railway Station Tel.: 0251-2480321 / 28
Fri.	19 May	5.30 p.m.	Dadar (E) : Kohinoor Hall, Swami Gyan Jivandas Road, Lokmanya Tilak Colony, Tel.: 4232 12 00 / 2418 55 86

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